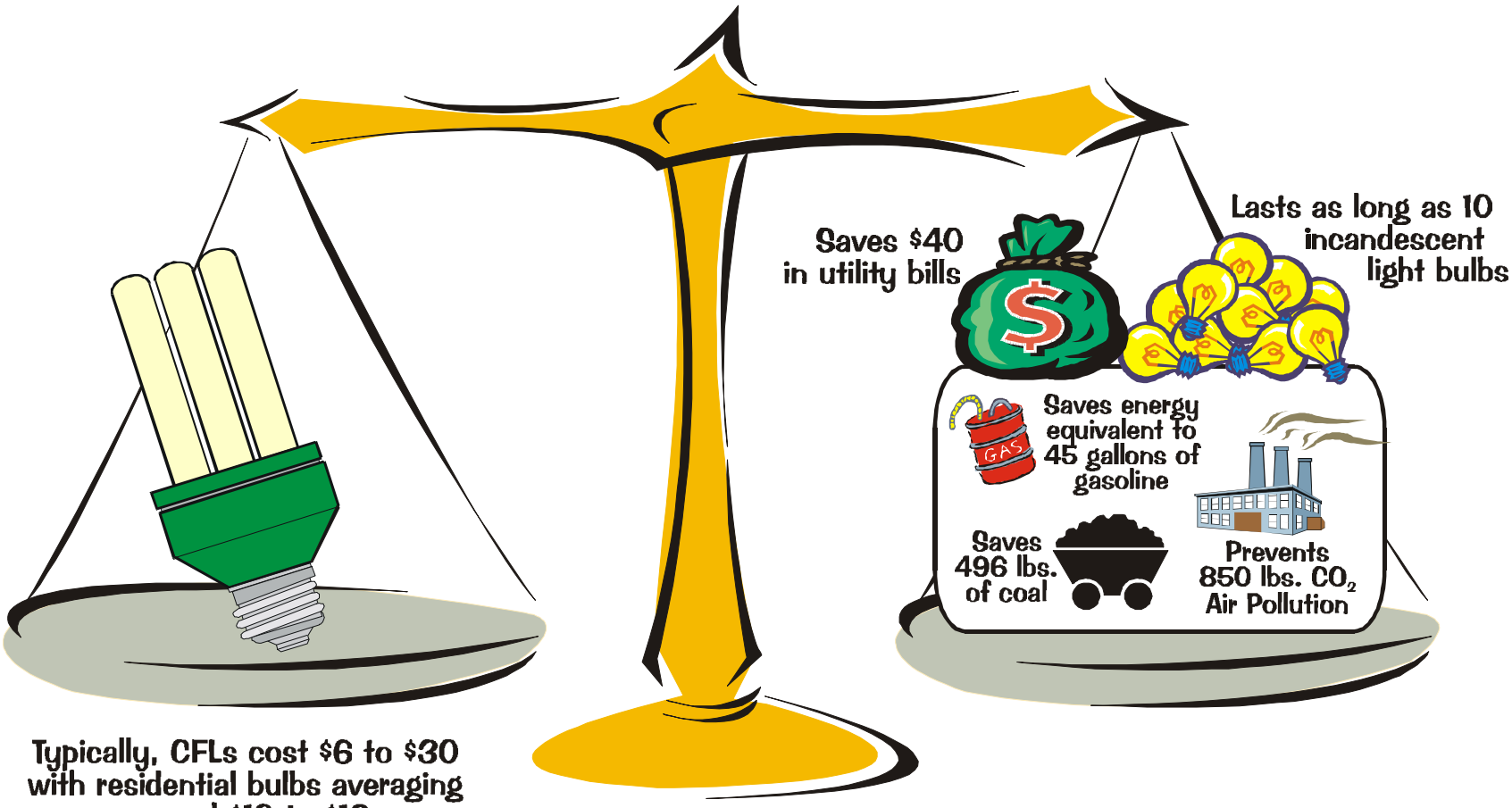
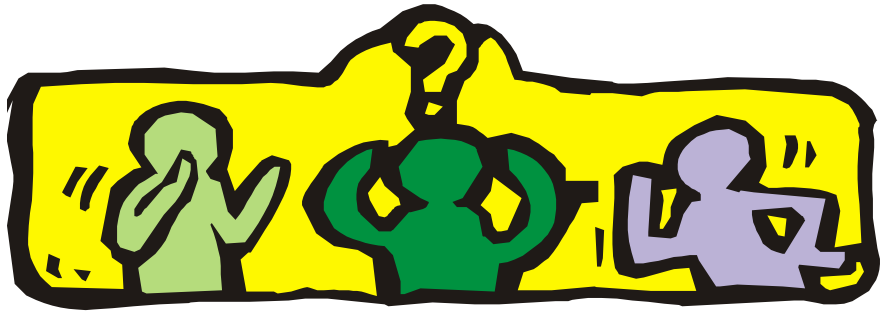
Balancing the cost of one energy-efficient compact fluorescent light (CFL) bulb with its benefits



Typically, CFLs cost $6 to $30 with residential bulbs averaging around $10 to $12

Watch for CFLs with ENERGY STAR **coming in 1999!**

EPA DOE
SAVING THE EARTH. SAVING YOUR MONEY.



What's Your Opinion?

Can our class use less energy,
prevent air pollution, and save money
by replacing our light bulbs
with energy-efficient
Compact Fluorescent Lights (CFLs)?

Let's Investigate!

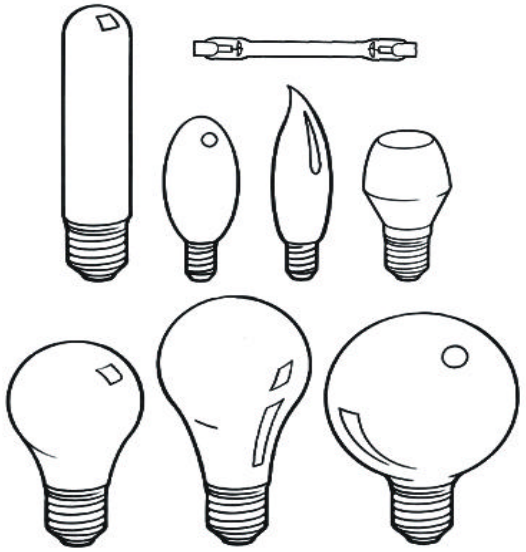
We'll follow these logic steps during our scientific inquiry about the benefits of energy-efficient compact fluorescent lights (CFLs):

1. Purpose
2. Research
3. Hypothesis
   (or educated guess)
4. Analysis and Experimentation
5. Conclusion
   (Fact or Opinion)

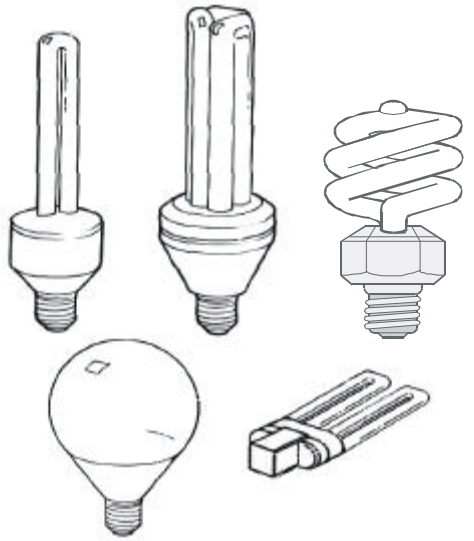
Define Purpose

Step 1 of our scientific investigation: Define Purpose.

Common Bulbs
(incandescent/halogen)



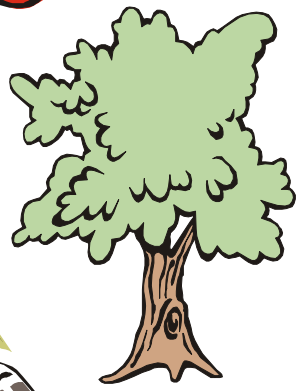
Energy-Saving Bulbs
Compact Fluorescent Lights (CFLs)



Answer question: Can energy-efficient CFLs help our class . . .

✓Use less energy ✓Save money ✓Prevent air pollution

Energy Saving Clue Sheet



- ✓ The average car is driven 11,400 miles each year and gets 27.5 miles to the gallon of gasoline.
- ✓ In a year, the average car uses 414.5 gallons of gasoline.
- ✓ It takes approximately 11,000 Btus of heat to bring you 1 kilowatt-hour of electricity that you can use in your home. (More than 2/3 of this energy is lost due to inefficiencies in production and transmission of the electric current.)
- ✓ 1 gallon of gasoline contains 125,000 Btus.
- ✓ 19.54 pounds of carbon dioxide (CO_2) emissions are generated from 1 gallon of gasoline.
- ✓ 8,100 pounds of (CO_2) emissions are generated by the average car in a year (see clues 1 and 2).
- ✓ Saving 3,450 kilowatt-hours/year prevents the same amount of CO_2 pollution that is removed by an acre of trees.
- ✓ Saving 3,445 kilowatt-hours of energy is equivalent to removing the CO_2 produced by a car in a year.
- ✓ Just over 2 pounds of CO_2 is produced when 1 kilowatt-hour of electricity is generated from fossil fuels.
- ✓ Saving 11 kilowatt-hours/year saves the equivalent amount of energy that is contained in a gallon of gas.
- ✓ 900,000 kWh is equivalent to the energy needed to put the space shuttle in orbit.